Notice of Allowability	Application No.	Applicant(s)	
	10/811,799	COLLIER, ACE R.	
	Examiner	Art Unit	
	Alexandra K. Pechhold	3671	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *3/10/06*.

2. ☒ The allowed claim(s) is/are *3 and 4*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☒ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☒ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☒ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☒ Other Marked-up Drawings

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Ace Collier on May 1, 2006.

The application has been amended as follows:

The Specification is entirely replaced with the following Specification:

Automobile Wheel and Track Snare

FIELD OF THE INVENTION

The invention relates to an apparatus to disable vehicles.

BACKGROUND OF THE INVENTION

Every year persons are killed in high-speed motor vehicle chases, such as when police are forced into chasing fleeing suspects. The victims of these high-speed chases include police officers, suspects, members of the public, and members of the military.

DESCRIPTION OF THE PRIOR ART

Various road barriers and tire piercing structure has been utilized in the prior art to prevent vehicles from fleeing the police. An example of a prior art tire piercing apparatus is in U.S. Pat. No. 4,473,948 to Chadwick, where a base plate includes a plurality of pins projecting upwards of the base plate to prevent an automobile from being driven. U.S. Pat. No. 4,382,714 to Hutchison invention is a vehicle-disabling device adapted to project a plurality of spike-like devices to puncture one or more tires of a fleeing vehicle. Such spike-like elements secured to bases by either a strand, cord, or short length of chain are evident in the prior art.

SUMMARY OF THE INVENTION

What is required is a method and apparatus that can be used to halt a suspect's motor vehicle in advance of a police chase, rendering a high-speed chase unnecessary.

In its preferred embodiment, the wheel and track snare consists of a folding deployment board, seen in Fig. 2, with a hinge in the middle. The board is about ten feet long and one or two feet wide, though the measurements can be approximated depending on the immediate requirements, since the device can be assembled in a very short time.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a side view of the base plate.

Fig. 2 is a view of the deployment board with hinges for deployment in front of a fleeing vehicle.

Fig. 3 is a view of a device laid out in front of an approaching vehicle.

Fig. 4 is an isometric projection of a base plate with a sleeve for the cable, and screw-type barbs projecting from the plate.

Fig. 5 is a view showing a cable with loops coiling around the wheels' control arms and drive axles.

Fig. 6 is a view showing cable snare gripping a wheel of a vehicle.

Fig. 7 is a view of a vehicle tire on a spiked base plate to facilitate spike penetration.

Fig. 8 is a view of the cable snare locking onto the wheels of a vehicle.

Fig. 9 is a view of the base plates on a folding deployment board.

Fig. 10 is a view of another embodiment for use with a tank, showing a snare cable entwined around a track and drive sprocket wheel using grappling hooks to disable the tank.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The wheel and track snare apparatus is designed to quickly and effectively stop a moving vehicle (V) with rubber tires (T). In another embodiment shown in Figure 10, the snare can be used on a track-driven vehicle (TV), such as a tank. To facilitate disabling of a track-driven vehicle, the base plates (2) are equipped with grapping hooks (6).

The snare operates to harness the control arms and drive axles of the wheels of the vehicle (V), while piercing the tires (T) with barbs (1), in order to disable the vehicle (V). The snare consists of a folding deployment board (4) with a hinge (H) in the middle, as shown in Figures 2 and 9. A 30-foot long and 0.5-inch diameter wire rope or cable (3) is removably fastened onto the deployment board by a plurality of clips, in a configuration having two loops in order to engage each tire (T). The removable connection allows the cable (3) to separate from the deployment board (4) when struck by a moving vehicle (V). The wire rope (3) is threaded through a plurality of steel base plates (2), preferably 1/8 inch thick, by drawing the rope (3) through a guide tube (7) that is welded to the lower surface of each plate (2) as shown in Figures 1, 4, and 7. A wire rope or cable (3) is preferred to using a chain. Each steel base plate (2) is

equipped with four or five barbs (1) in a screw-type configuration that are mounted on a swivel collar to aid the turning of the barb (1) into the solid rubber of the tire (T). As the tires (T) of a vehicle (V) approach plates (2) as shown in Figure 3, the angle of the barbs (1) facilitate direct piercing into the tires (T) while the cable (3) surrounds the tires (T). The cable (3) is fashioned with a sliding noose, as shown in Figures 4, 5, 6, 8, and 9. The base plates (2) with the barbs (1) are forced into the tire (T) of the moving vehicle (V) causing the cable (3) to wrap around the control arms and drive axles of the wheels, as illustrated in Figures 5 and 6. This action of using the vehicle's own power generated by the spinning tires (T) creates a lasso-effect, causing the noose to tighten as shown in Figure 5, thereby disabling the vehicle's control arms and drive axles and causing the wheels to seize.

The Abstract has been replaced with the following new Abstract:

ABSTRACT

A vehicle disabling and stopping device that will bring a vehicle to a quick stop regardless of the wheel or track configuration. The device comprises an aircraft-type cable or wire rope laced through guide tubes welded onto base plates. The cable ends are fashioned into a running bowline or noose on a deployment board in a configuration intended to choke and hold vehicle tire wheels and control arms. The base plates have two to four tire probes attached thereto to be embedded into the vehicle tires, or in the base of a track driven vehicle, grappling hooks are used. When a vehicle engages the device, the probes lock onto the solid or inflated tire. On a track driven vehicle, the grappling hooks lock onto the track shoe and drive sprocket wheels. The cable ends are fashioned with a running bowline using a double clevis for heavy vehicles. The cable coils around spinning wheels and track, shorting the cable until it chokes the wheel control arms, drive axles, and sprocket wheels.

The Claims are replaced with the following new Claims:

CLAIMS

This listing of claims shall replace all prior versions and listings of claims in this application.

1. (Cancelled)

2. (Cancelled)

3. (New) An apparatus for engaging wheels of a moving vehicle and stopping the vehicle, the vehicle having tires with control arms and drive axles, the apparatus comprising:

a 10 foot long and 1 to 2 foot wide deployment board having a hinge in a central portion,

a 30 foot long, 0.5 inch diameter wire rope removably fastened onto said deployment board by a plurality of clips for allowing said wire rope to separate from said deployment board when struck by said moving vehicle,

said wire rope attached to a plurality of 4 inch by 8 inch by 1/8 inch steel plates, each said plate having an upper surface and a lower surface,

a guide tube welded onto the lower surface of each said plate,

said wire rope threaded through each guide tube on each plate for maintaining said wire rope in connection with said plates,

a plurality of barbs welded onto the upper surface of each said plate,

said wire rope configured into a shape of two sliding loops on said deployment board, one loop for each wheel of the vehicle,

whereby each loop engages a tire, creating a lasso effect, and forcing said plurality of barbs on said plates into the tires of the vehicle, causing the cable to wrap

around the wheel and control arms, thereby using the vehicle's own power to generate the lasso effect to disable the vehicle's control arms and drive axles, and causing the wheels to seize and/or deflate.

4. (New) A method of engaging wheels of a moving vehicle and stopping the vehicle, the vehicle having tires with control arms and drive axles, the method comprising:

providing a plurality of 4 inch by 8 inch by 1/8 inch steel plates, said steel plates each having an upper surface and a lower surface,

mounting a plurality of barbs onto the upper surface of each said plate,

attaching a guide tube to the lower surface of each plate by welding,

threading a 0.5 inch diameter and 30 foot long wire rope through each of said guide tubes,

placing said wire rope having a plurality of said steel plates thereon onto a 10 foot long and 1 to 2 foot wide deployment board having a hinge in a central portion thereof,

laying said wire rope on said deployment board in a configuration having two sliding loops, one loop to engage each wheel, and removably fastening said wire rope onto said deployment board by a plurality of clips, and

placing said deployment board with attached said wire rope on a ground surface in front of a moving vehicle,

whereby each said loop engages a wheel of the vehicle, creating a lasso effect, forcing said plurality of barbs on the plates into the tires of the vehicle and causing said wire rope to wrap around the wheel and control arms,

thereby using the vehicle's power to generate the lasso effect to disable the control arms and the drive axles of the vehicle, and causing the wheels to seize and/or deflate.

Drawings

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheets should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Applicant should submit replacement formal Drawings, which incorporate the corrected reference numeral as indicated by the Examiner in the attached, marked-up drawings (which were already sent on 11/17/04), and also comply with the Draftsman's comments (also previously sent).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexandra Pechhold whose telephone number is (571) 272-6994. The examiner can normally be reached on Mon-Thurs. from 8:00am to 5:30pm and alternating Fridays from 8:00am to 4:30pm.

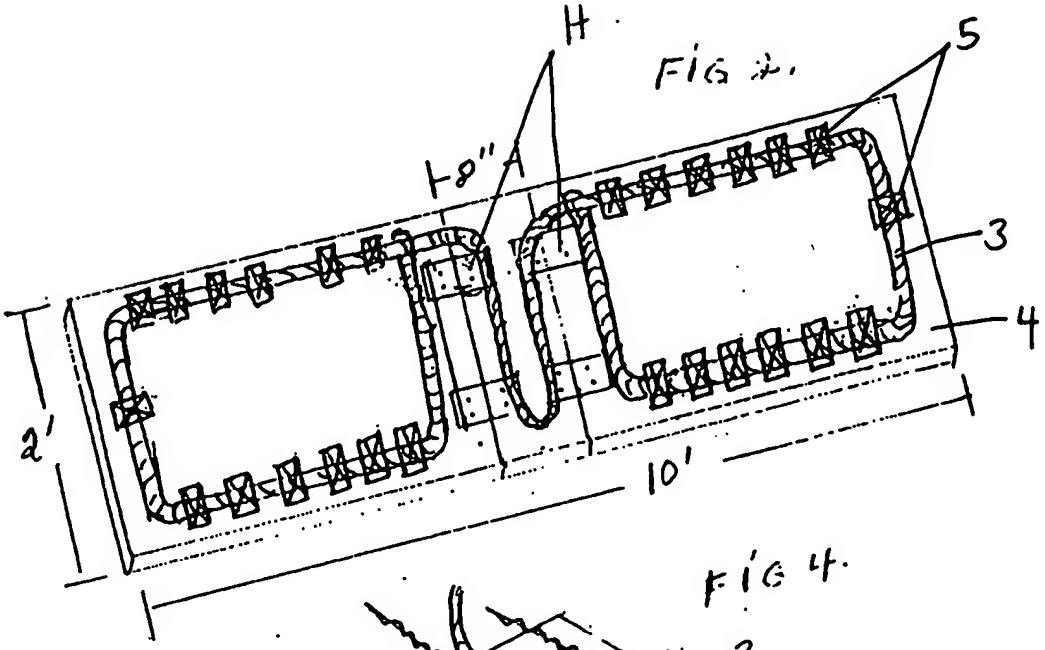
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas B. Will, can be reached on (571) 272-6998. The fax phone number for this Group is (571) 273-8300.

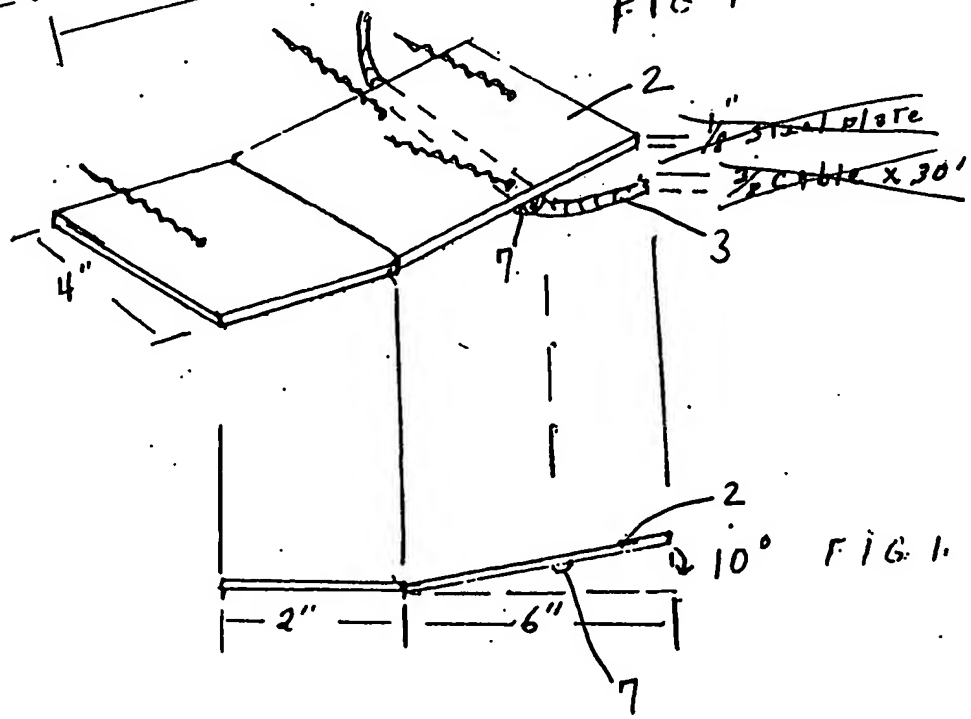
Thomas B. Will
Supervisory Patent Examiner
Group 3600

AKP
5/3/06

~~CLAIM 2.~~

~~COLLAR~~





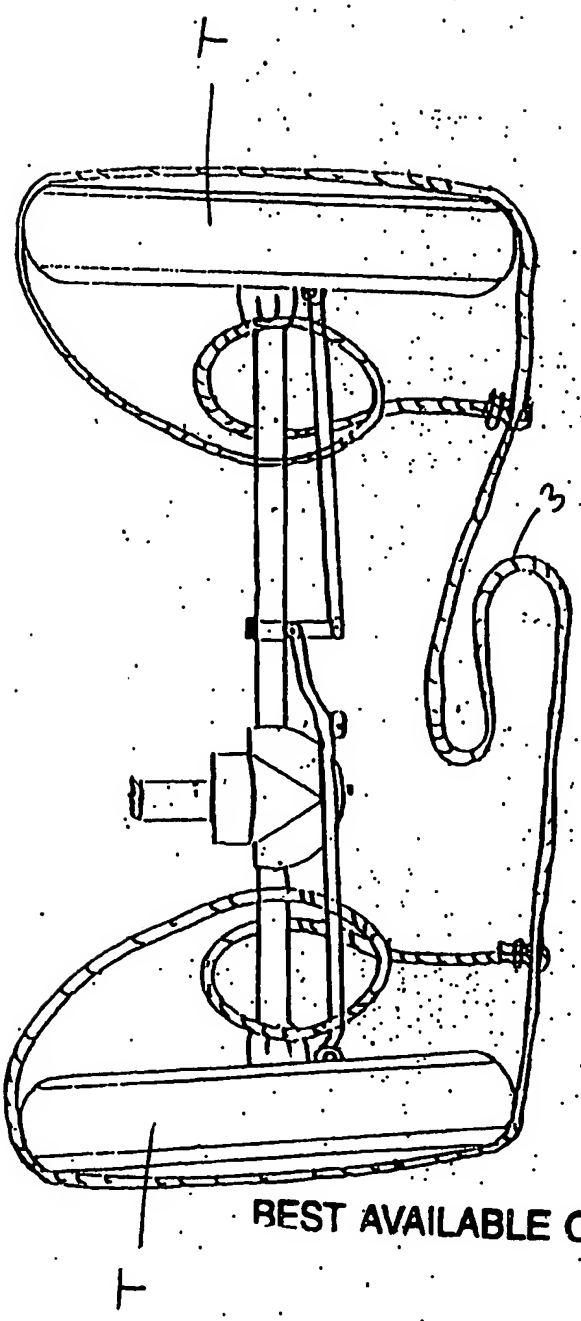


FIG. 5

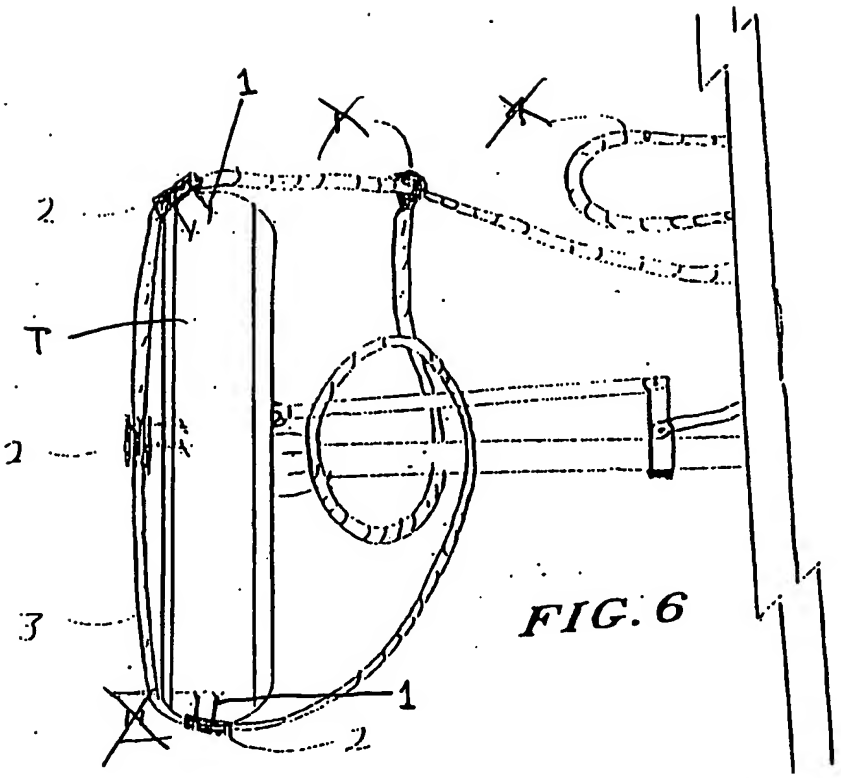


FIG. 6

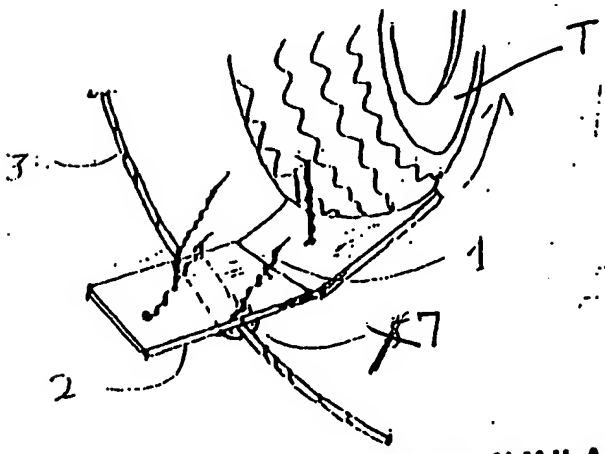


FIG.7

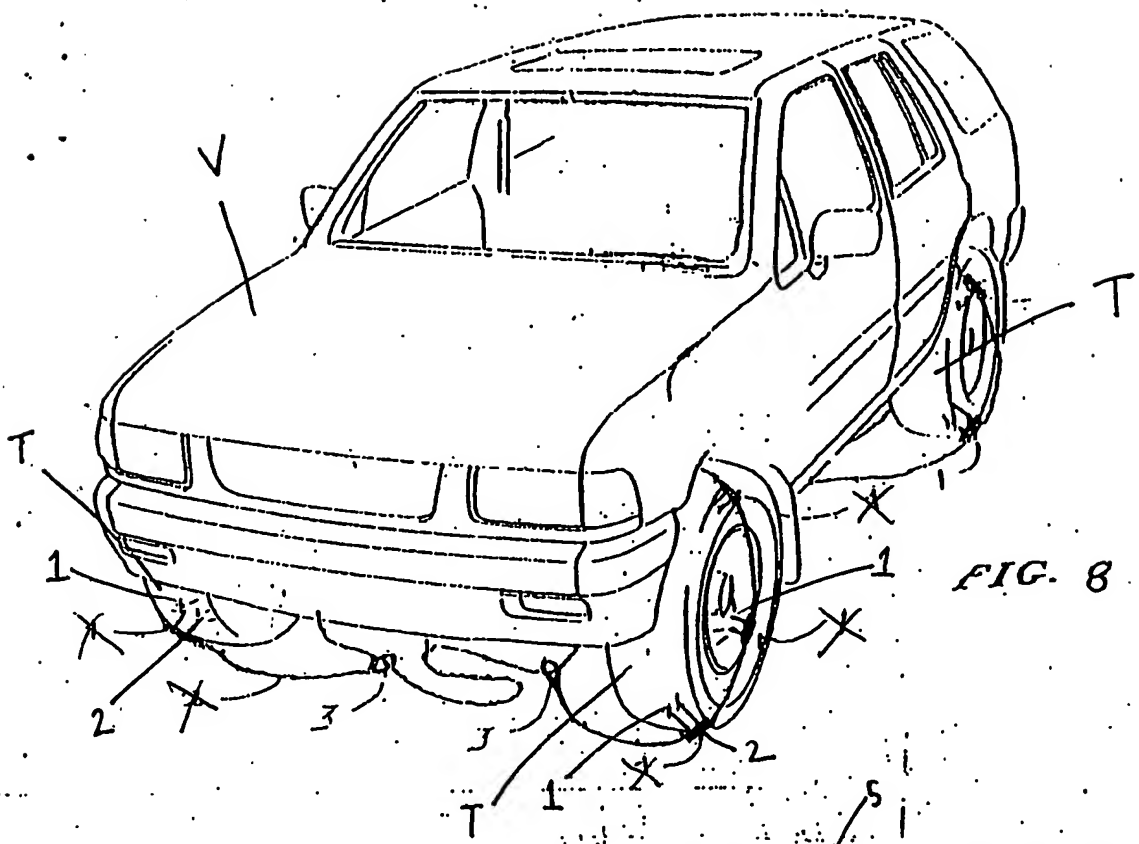


FIG. 8

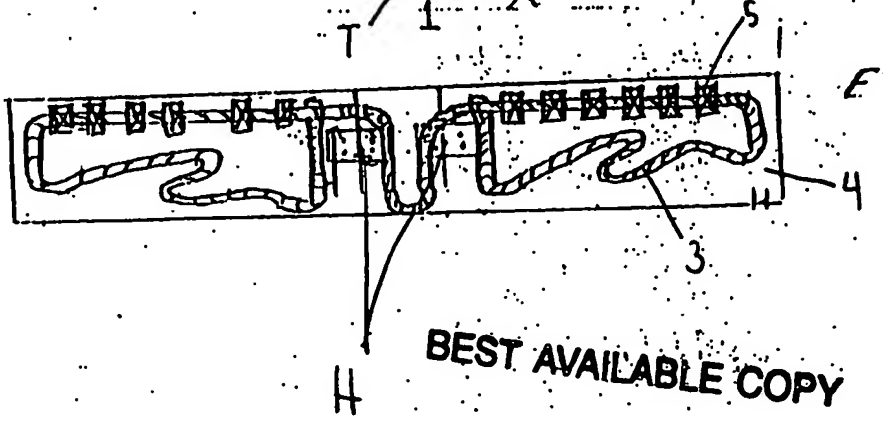


FIG 9

COLLIER